

REMARKS

Reconsideration of this application as amended is respectfully requested. Claims 1-5, 8, 14, 15, 17-20, 23, 29 and 30 have been amended; claim 16 has been canceled; and claims 31-42 have been newly added. Therefore, claims 1-15 and 17-42 are in this application and are presented for the Examiner's consideration in view of the following comments.

Except as discussed below, claims 1-5, 8, 14, 15, 17-20, 23, 29 and 30 have been amended to improve their form without regard to the rejections discussed herein.

The Examiner has objected to the Abstract. Applicants have submitted a new Abstract. No new matter has been added.

The Examiner has objected to claim 15. Applicants have amended claim 15 to address the Examiner's objections.

The Examiner has objected to claims 16 and 17 as being in improper form under 37 C.F.R. § 1.75(c). Applicants have canceled claim 16 and amended claim 17 to depend from claim 1.

Claim 4 has been rejected under 35 U.S.C. 112, second paragraph. In particular, the Examiner states that it is not clear if the resistor or the conductive member have elasticity. Applicants have amended claim 4 to make clear that the conductive member has elasticity.

Claims 1-15 and 18-30 have been rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,067,005 issued May 23, 2000 to DeVolpi ("DeVolpi"). Applicants have amended independent claims 1, 18 and 19.

With respect to independent claims 1, 18 and 19, these claims require a "level segmenting unit." Applicants respectfully submit that DeVolpi does not describe or suggest this requirement of Applicants' claims.

As a result, Applicants respectfully submit that the rejection of claims 1, 18 and 19 has been overcome. Therefore, the basis of the rejection of dependent claims 2-15, 17 and 20-30 has also been removed.

Applicants have added new claims 31-42 and respectfully submit that these claims are also patentable over the cited prior art. In particular, independent claims 31 and 37 include limitations similar to those that distinguish claims 1, 18 and 19 over the prior art. For that reason, Applicants submit that claims 31-42 also patentably distinguish over the prior art such as to warrant their immediate allowance.

Applicants have briefly reviewed the other prior art references made of record in the Official Action, but not relied upon, and believe them to be no more pertinent to the present invention than discussed in the present Official Action.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version With Markings To Show Changes Made."**

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone Applicants' attorney at (908) 654-5000 in order to overcome any additional objections that the Examiner might have.

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Docket No.: SCEI 3.0-029

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

By


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Version With Markings To Show Changes Made

CLAIMS:

1. (Amended) A control apparatus, comprising:
a controller ~~which can be pressed;~~
a detecting device for ~~outputting~~ providing an analog signal in response to a pressure applied corresponding to the pressing operation of said controller; and
an output unit ~~for including a digital signal having a plurality of bits which~~ a level segmenting unit for segmenting an output level of the analog signal, and an analog-to-digital (A/D) converting unit for converting the segmented output level of the analog signal into a digital signal having a plurality of bits ~~converts the analog signal that is outputted by said detecting device in accordance with the pressing operation of said controller into a digital signal having a plurality of bits in accordance with an output level of the analog signal.~~

2. (Amended) An apparatus according to Claim 1, wherein
said detecting device is a pressure-sensitive device which is arranged at a position relative to said controller such that ~~to which a pressure acting on said controller is transmitted to~~ said detecting device.

3. (Amended) An apparatus according to Claim 1, wherein
said detecting device comprises:
a resistor; and
a conductive member which moves together with said controller for contacting said resistor; ~~and has elasticity and~~
~~a resistor which is disposed at a position which said~~
~~conductive member is brought in contact with and out of contact with,~~

wherein said conductive member has elasticity, and the output level of said resistor outputs the analog signal corresponding corresponds to a contact area between said resistor and with said conductive member.

4. (Amended) An apparatus according to Claim 1, wherein said detecting device ~~comprises~~ includes:

a conductive member; and

a resistor which moves together with said controller for contacting said conductive member; and

~~a conductive member that is disposed at a position which said conductive member is brought in contact with and out of contact with,~~

wherein said conductive member has elasticity, and has elasticity, and the output level of the analog signal corresponds said resistor outputs the analog signal corresponding to a contact area between said resistor and with said conductive member.

5. (Amended) An apparatus according to Claim 3 or 4, wherein

said conductive member is deformed deformable and a size of the and has a contact area is a function of with said resistor in accordance with a contact pressure exerted on said conductive member by with said resistor.

8. (Amended) An apparatus according to Claim 5, wherein

said conductive member is formed with a shape having a cross-sectional area which decreases stepwisestep by step toward a top portion which faces said resistor.

14. (Amended) An apparatus according to Claim 3 or 4, wherein said resistor is formed with a shape having a cross-

sectional area which decreases ~~step-by-step~~stepwise toward a ~~top-portion~~ which faces said ~~resistor~~conductive member.

15. (Amended) An apparatus according to Claim 3 or 4, wherein

said conductive member is deformed—deformable in accordance with a contact pressure exerted on said conductive member bywith said resistor such that and ~~has a size of the~~ contact area between said conductive member and with said resistor ~~is changed,~~changes; and

said resistor comprises non-conductive regions such that ~~divides a contact region of said conductive member by a space~~ and ~~the contact area in accordance with the deformation of said conductive member increases step-by-step~~stepwise.

17. (Amended) An apparatus according to Claim ~~16~~ 1, wherein said level segmenting unit uniformly segments the output level of the analog signal ~~which is outputted by said detecting device in accordance with the pressing operation of said controller.~~

18. (Amended) A control apparatus, ~~detecting device used for a control apparatus having a controller that can be pressed and operated which outputs an analog signal corresponding to the pressing operation of said controller,~~ comprising:

a controller;

a detecting device which provides an analog signal in response to a pressure applied to said controller, said detecting device including a resistor and a conductive member which moves together with said controller for contacting said resistor, where said conductive member has elasticity, and an output level of the analog signal corresponds to a contact area between said resistor and said conductive member;

a level segmenting unit for segmenting the output level of the analog signal; and

an analog-to-digital (A/D) converting unit for converting the segmented output level of the analog signal into a digital signal having a plurality of bits

~~a conductive member which moves together with said controller and has elasticity and a resistor which is disposed at a position to which said conductive member is connected and disconnected, wherein said resistor outputs the analog signal corresponding to a contact area with said conductive member.~~

19. (Amended) A control apparatus, having a controller and a detecting device which provides used for a control apparatus having a controller that can be pressed and controlled which outputs an analog signal in response to a pressure applied corresponding to the pressing operation of to said controller, wherein said control apparatus further comprises an output unit comprising:

a controller;

a detecting device which provides an analog signal in response to a pressure applied to said controller, said detecting device including a conductive member and a resistor which moves together with said controller for contacting said conductive member, where said conductive member has elasticity, and an output level of the analog signal corresponds to a contact area between said resistor and said conductive member;

a level segmenting unit for segmenting the output level of the analog signal; and

an A/D converting unit for converting the segmented output level of the analog signal into a digital signal having a plurality of bits~~a resistor which moves together with said controller, and~~

~~a conductive member that is disposed at a position to which said resistor is connected and disconnected and has elasticity, wherein said resistor outputs the analog signal correspondscorresponding to a contact area with said conductive member.~~

20. (Amended) A control apparatusdevice according to Claim 18 or 19, wherein

~~said conductive member is deformeddeformable and a size of the in accordance with a contact area is a function of a contact pressure exerted on said conductive member by with said resistor and the contact area with said resistor changes.~~

23. (Amended) A device according to Claim 20, wherein

~~said conductive member is formed with a shape having a cross-sectional area which decreases step by stepstepwise towards a topportion that faces said resistor.~~

29. (Amended) A device according to Claim 18 or 19, wherein

~~said resistor is formed with a shape having a cross-sectional area which decreases step by stepstepwise towards a topportion that faces said conductive member.~~

30. (Amended) A device according to Claim 18 or 19, wherein

~~said conductive member is deformabledeformed in accordance with the a contact pressure exerted on said conductive member by with said resistor such that a size of and the contact area between said conductive member and with said resistor changes; and~~

said resistor comprises non-conductive regions such that a
~~contact region with said conductive member of said resistor is~~
~~divided by a space and the contact area increases step by~~
~~stepstepwise in accordance with the deformation of said~~
~~conductive member.~~